



**A STANDARD OPERATING PROCEDURE  
for**

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# **Emergency Eyewash and Shower Equipment**

July 2001

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U.S. General Services Administration  
Safety and Environmental Management Team  
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# INTRODUCTION

This Standard Operating Procedure (SOP) has been developed for the purpose of outlining the requirements for selection, installation, and use of emergency eyewash and shower equipment.

This SOP is based upon criteria derived from Title 29, Code of Federal Regulations, Part 1910.151(c) which states "Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate use."

The lack of proper equipment or locations for adequate emergency eyewash and/or shower equipment will constitute a serious situation to GSA employees who work in areas where it is required to have such protection (e.g., battery charging or storage areas, chemical handling areas, etc.)

OSHA standards may be obtained from the local OSHA Area Office or purchased from the Superintendent of Documents, Government Printing Office, Washington, DC 20402. The American National Standards Institute (ANSI) standard "Emergency Eyewash and Shower Equipment, Z358.1" may be purchased from American National Standards Institute, 1430 Broadway, New York, NY 10018.

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General Services Administration  
Heartland Region  
**EMERGENCY EYEWASH AND SHOWER EQUIPMENT**

1. **PURPOSE**. This SOP establishes minimum performance standards for emergency eyewash and shower equipment for the treatment of the eyes or the body in the event of an exposure to injurious materials.

2. **SCOPE**. This SOP applies to all GSA operations where hazardous materials are used or stored and which have the potential for employee injury as noted in 29 CFR 1910.151.

3. **GENERAL INFORMATION**.

a. The first seconds following an eye injury are often critical to keeping eye injury to a minimum. In the event of a chemical splash in the eyes or on the skin, the initial treatment of choice is active, mechanical flushing with a copious supply of potable water. Active irrigation must generally continue for a period of at least 15 minutes. This amount of time is generally needed to adequately flush the eyes or skin when hazardous chemicals are involved.

b. Providing 15 minutes of flushing requires a considerable amount of water. Eyewash units must operate at 0.4 gallons per minute (gpm); showers at 20 gpm. Portable units may not contain sufficient quantity to meet this important time period and volume. It is for this reason that portable emergency eyewash units are **not** recommended for use in GSA workplaces where a plumbed potable water supply is available.

c. Personal eyewash units (eyewash squeeze bottles and other such plastic devices) are **NOT** appropriate emergency eyewash systems and are **NOT** to be used under any circumstances.

4. **REFERENCES**.

a. OSHA 29 CFR 1910.151, Medical services and first aid.

b. American National Standards Institute (ANSI) standard "Emergency Eyewash and Shower Equipment," Z358.1-1998.

5. **RESPONSIBILITIES**.

a. **Facility Managers**. Where exposures to hazardous materials are present in the workplace, facility managers must advise the responsible regional Occupational Safety & Health

(OSH) Program Office. Where an emergency eyewash or shower unit has been determined to be required, facility managers will ensure the units are properly installed, tested, and maintained.

b. Regional OSH Program Offices.

(1) Upon receipt of information that hazardous materials are using in the workplace, the regional OSH Program Office shall determine if an on-site visit is necessary. In cooperation with the facility manager and responsible supervisor, a decision will be made as to the type of emergency eyewash or shower that will be required and where it will be located.

c. Supervisors. Supervisors responsible for conducting operations which require an emergency eyewash or shower shall:

(1) Ensure that each affected employee is informed of the location and the intended use of the equipment.

(2) Ensure affected employees are provided necessary training on the proper use of emergency equipment.

(3) Ensure required testing of the emergency equipment is conducted, as outlined in paragraph 7, below. Additionally, the supervisor shall ensure that records are maintained of these tests.

(4) Maintain a current copy of the manufacturer's instructions for installation and maintenance of the emergency eyewash and shower equipment.

6. CONSTRUCTION.

a. Emergency eyewash and shower equipment shall be constructed in accordance with requirements outlined within the ANSI Z358.1.; equipment not meeting ANSI 358.1 shall **NOT** be used.

b. The equipment shall be assembled and installed in accordance with the manufacturer's instructions.

7. INSTALLATION.

a. Flushing Fluids. Plumbed systems are the preferred method of providing emergency eyewash or shower facilities. Self-controlled units are to be used only where plumbing is unavailable.

(1) Plumbed units shall be connected to a potable water, or its equivalent, supply. Non-potable water shall **NEVER** be used in emergency eyewash or shower facilities.

(2) The stored flushing fluid shall be protected against airborne contaminants (i.e., by use of covers, dust caps, etc).

(3) Flushing fluids in self-contained units shall be chemically treated to prevent growth of microbial contaminants. Retreatment or replacement of stored flushing fluids shall be accomplished as recommended by the manufacturer.

(4) Where the possibility of freezing conditions exists, equipment shall be protected from freezing or freeze-protected equipment shall be installed.

(5) Delivered flushing fluid temperature shall be tepid.

b. Shower Units. The manufacturer's instructions shall be used when installing the equipment with the following conditions in mind:

(1) Shower heads shall be designed so that a water column is provided that is not less than 82 inches nor more than 96 inches in height from the surface on which the user stands.

(2) The water spray pattern shall have a minimum diameter of 20 inches at 60 inches above the surface on which the user stands.

(3) The center of the water spray shall be located at least 24 inches from any obstruction.

(4) Shower heads must be capable of delivering a minimum of 20 gallons per minute for at least 15 minutes which shall be dispersed substantially throughout the pattern.

c. Eyewash Units. The manufacturer's instructions shall be used when installing the equipment with the following conditions in mind:

(1) Eyewash nozzles shall be installed so that the water column is provided beginning not less than 33 inches nor more than 45 inches in height from the surface on which the user stands.

(3) The center of the water spray shall be located at least 6 inches from any obstruction.

(4) Eyewash units must be capable of delivering 0.4 gallons per minute for at least 15 minutes, which shall be dispersed substantially throughout the pattern.

(5) Eyewash nozzles shall be protected from airborne contaminants. Whatever means are used to afford such protection, its removal shall not require a separate motion by the operator when activating the unit.

(6) There shall be no sharp projections anywhere in the operating area of the unit.

(7) A means shall be provided to ensure that a controlled flow of potable water, or its equivalent, is provided to both eyes simultaneously.

d. Control Valves. Control valves shall:

(1) Be designed so that the water flow remains on without requiring the use of the operator's hands.

(2) Be simple to operate and shall go from "off" to "on" in one second or less. If shut off valves are installed in the supply line for maintenance purposes, provisions shall be made to prevent unauthorized shut off.

(3) The valve actuator shall be large enough to be easily located and operated by the user.

NOTE: Sample drawings are provided in Appendix A.

## 8. TESTING.

a. Plumbed emergency eyewash and shower equipment shall be activated weekly to flush the line and to verify proper operation. Care must be exercised to ensure standing water does not accumulate creating an unsafe condition.

b. Portable emergency equipment shall be tested in accordance with the manufacturer's instructions.

c. Records of the above tests shall be maintained.

d. Equipment not operating properly shall be repaired or replaced immediately.

## 9. LOCATION.

a. The maximum time required to reach the equipment should be determined by the potential effect of the hazard. In no case will any equipment take longer than 10 seconds to reach and must be within 100 feet of the hazard. For a strong acid or strong

caustic, the equipment should be immediately adjacent to or within 10 feet of the operation. However, equipment must be on the same level as the operation.

b. The path from the hazardous task to the emergency equipment shall be free of obstructions or impairments of any kind.

c. Each emergency eyewash or shower location shall be identified with a highly visible sign.

d. The area around and behind shall be painted a bright color and shall be will lighted.

10. **TRAINING**.

a. Employees who may be exposed to hazardous materials shall be instructed in the location and proper use of emergency eyewash and/or shower equipment. When addressing washing of the eyes, training shall address holding the eyelids open and rolling the eyeballs so that flushing fluid will flow on all surfaces of the eyes and under the eyelids.



## **APPENDIX A**

### **EMERGENCY EYEWASH AND SHOWER INSTALLATION DIAGRAM**

INSTALLATION DIAGRAM

